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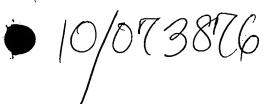


FIG.1



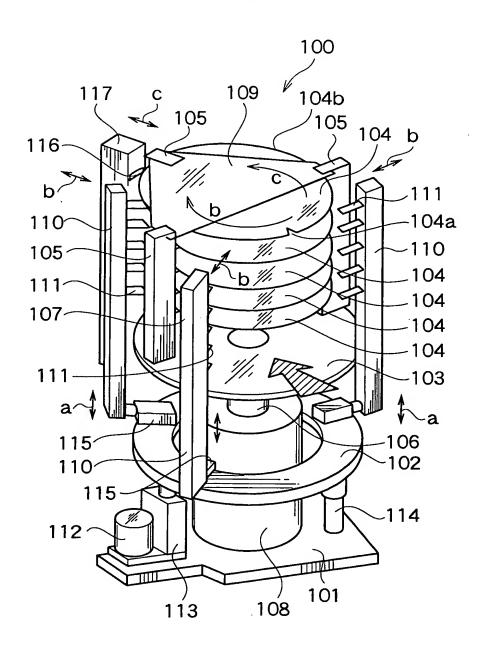


FIG.2

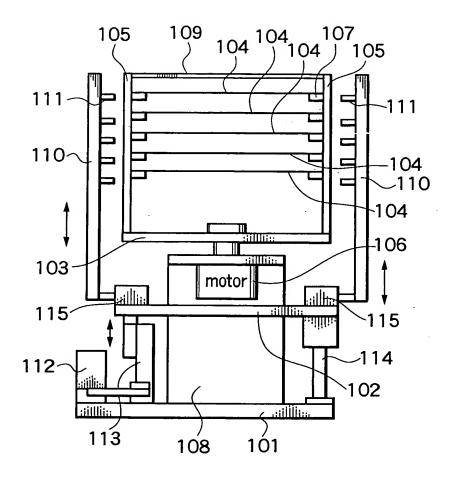


FIG.3A

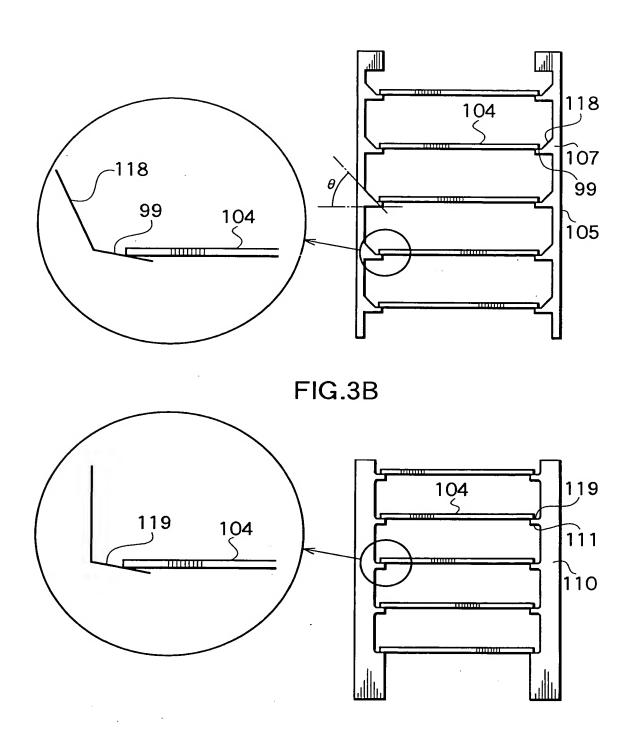


FIG.4

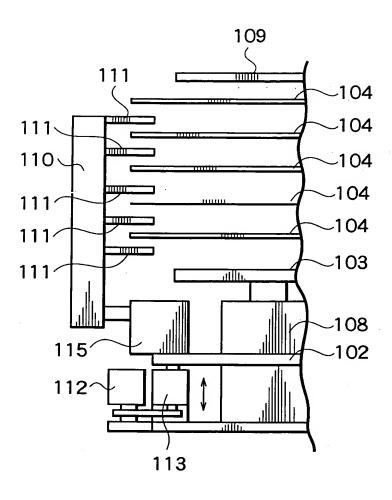


FIG.5A

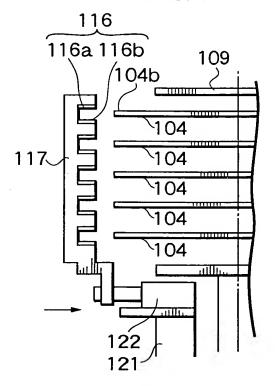
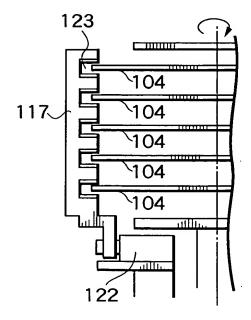
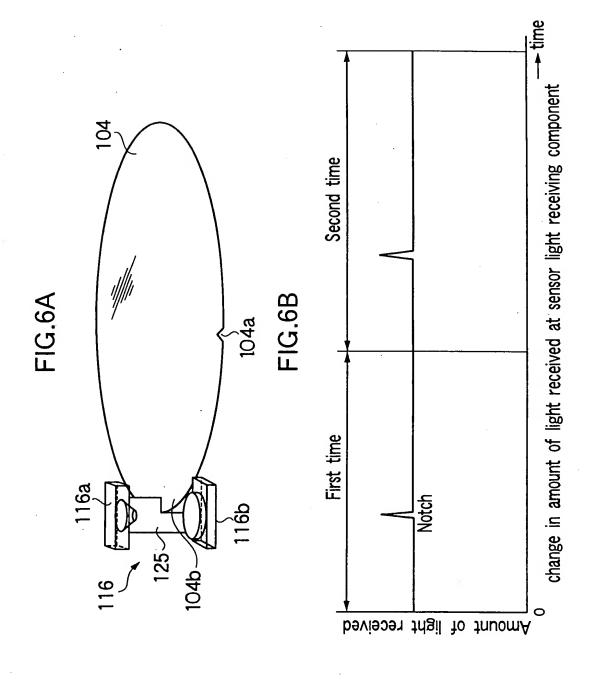
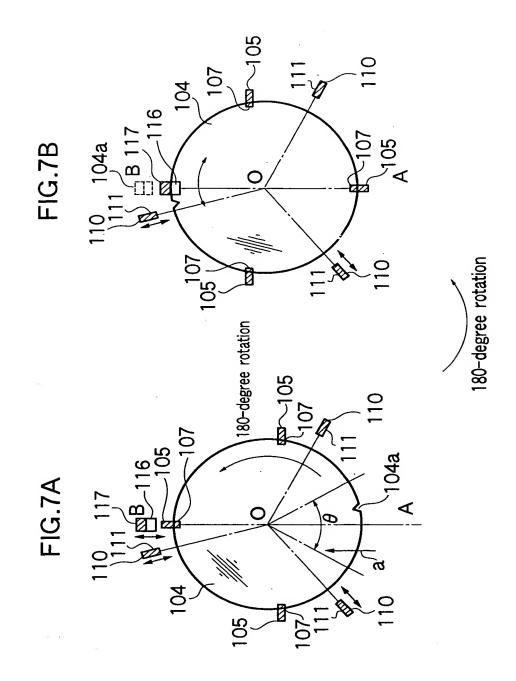


FIG.5B







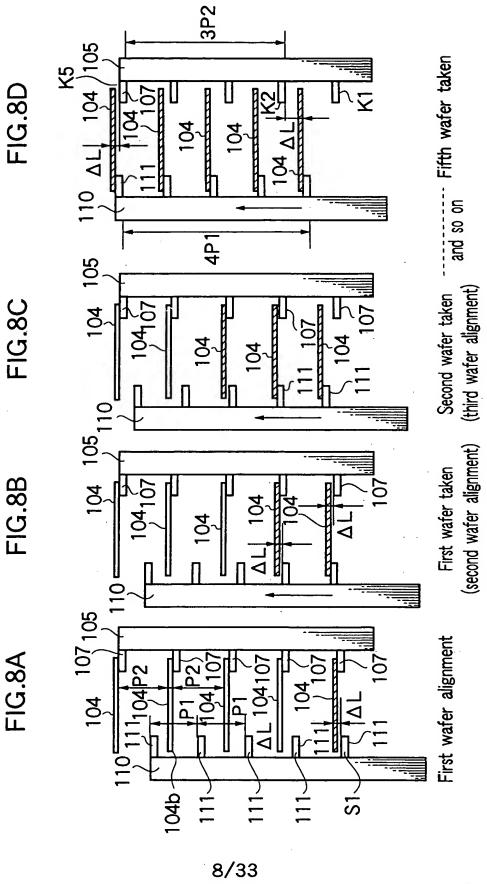
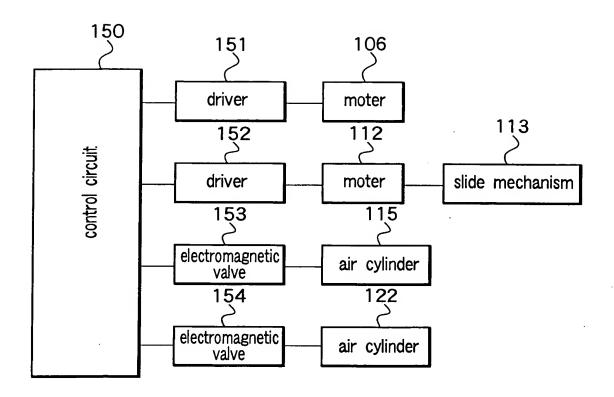
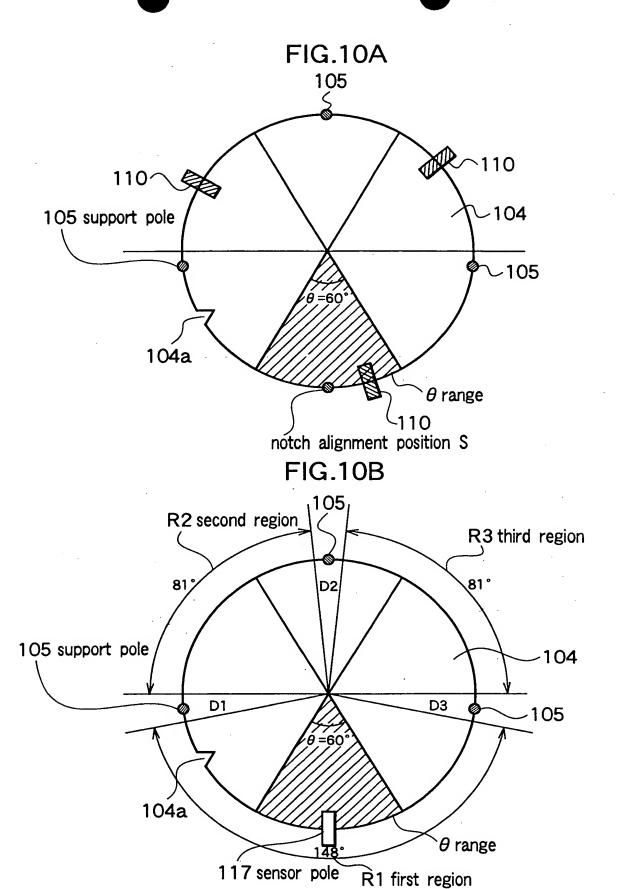


FIG.9



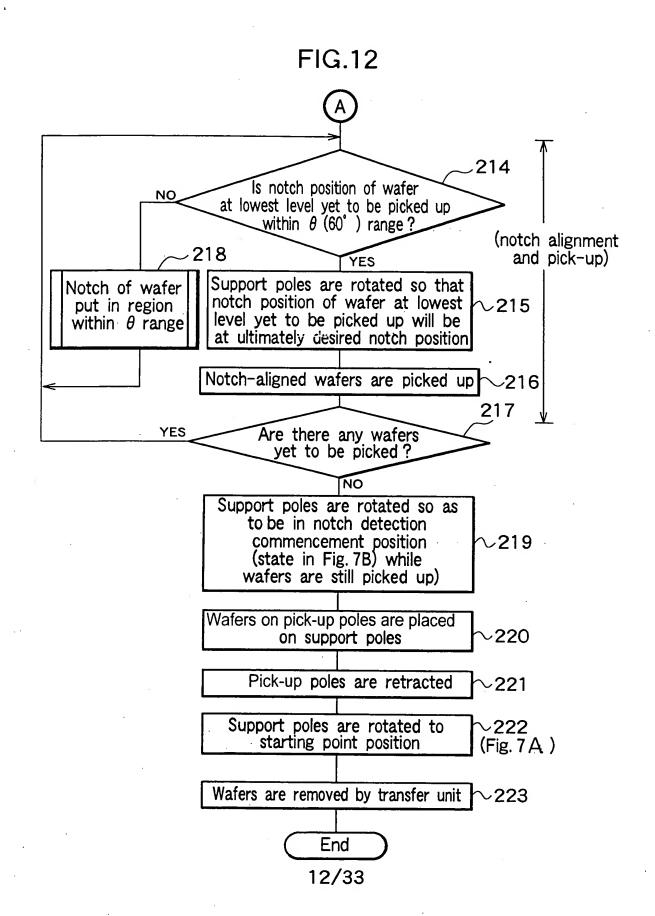


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FIG.11 Start Wafer loading by transfer unit \sim 201 202 180° rotation Support pole is rotated to notch detection commencement position (from state in Fig.7A to state in Fig.7B) (notch detection preparation) 203 Insertion of sensors at notch detectable positions 204 Notches detected in range of wafer between support poles(first region) (5 wafers at once) (notch detection -205 Sensors removed in searchable area) 206 Have notches of all YES wafers been detected? NO Notch detection 207 for second region 208 YES Have notches of all wafers been detected? sensor NO Notch detection 209 for third region 210 YES Have notches of all wafers been detected? sensor INO Insertion of pick-up poles at 211 position where pick-up is possible Insertion of pick-up poles at position where pick-up is possible Notches in unsearchable 213 **212** area are shifted to notch

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positions in searchable area



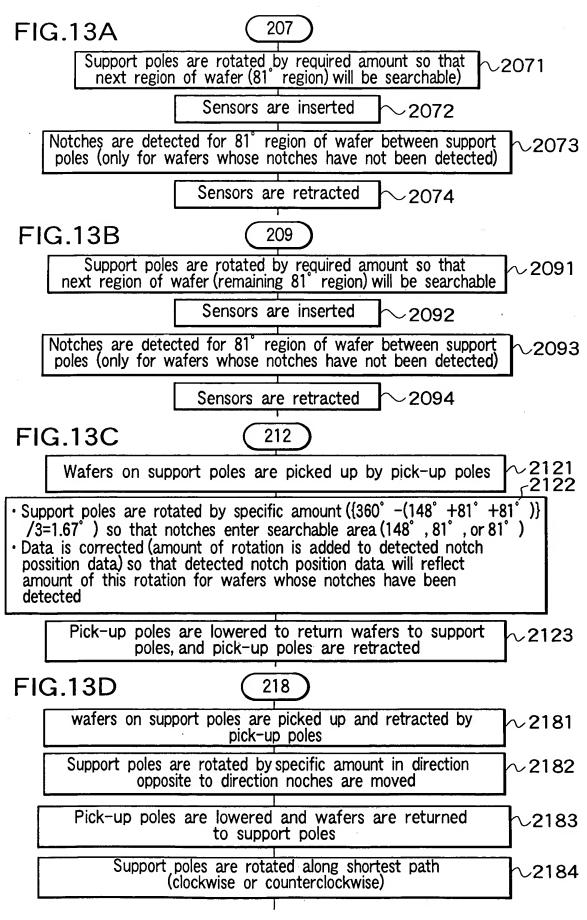
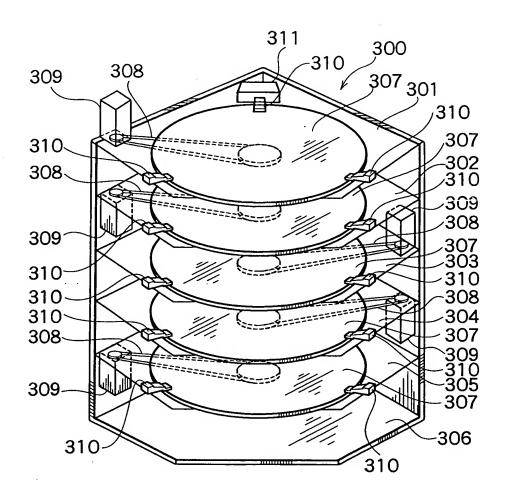


FIG.14A FIG.14D Support pole rotation Start B| 117 117 頂順 #图 110~ 104 104 110--105 104a 104a 105 105 *-*110 110 110/ 110 **~105** ^{_}105 FIG.14E FIG.14B Just support poles rotated wafer retraction Wafer rotation 117 ‡**ट्ट**~117 月頃 110 110~ 104 104a 105 105 105 **105** 110 **∞**110 110-110~ 104a -105 105 FIG.14C Wafer rotation 117 110 用用 104 105. 104a 105 **-110** 110~6 -105

Wafer rotation transition

Support pole rotation transition

FIG.15



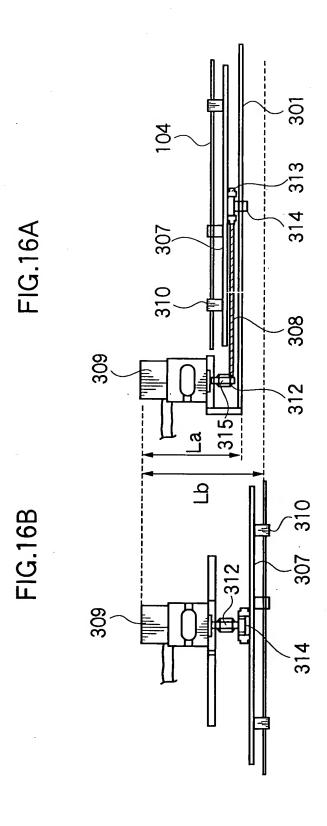
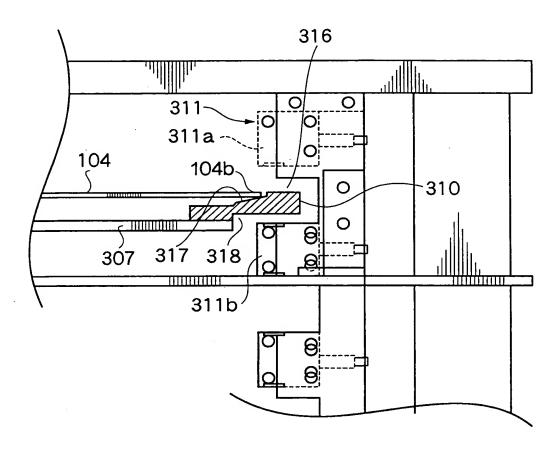


FIG.17



Relationship between support pins and notch detection sensors

FIG.18

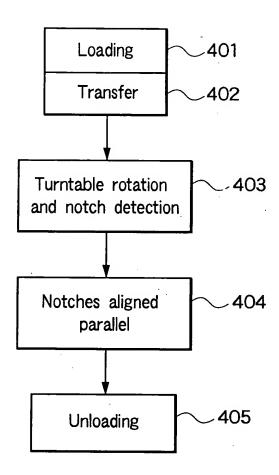


FIG.19A

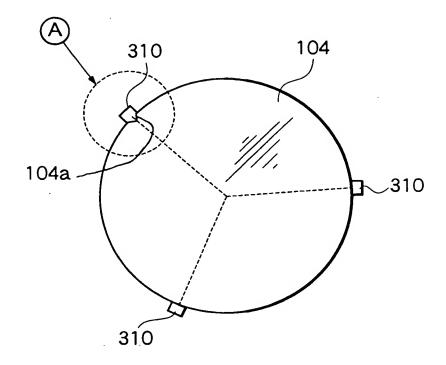


FIG.19B

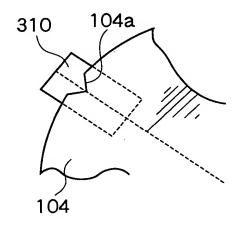


FIG.20A

Turntable brought to point of origin

Tweezers insertion path

307

310

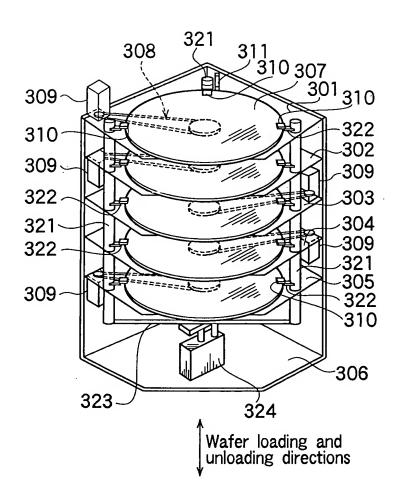
257

256

FIG.20B

310
257
256
310
307
104
310
257
256
310
307

FIG.21



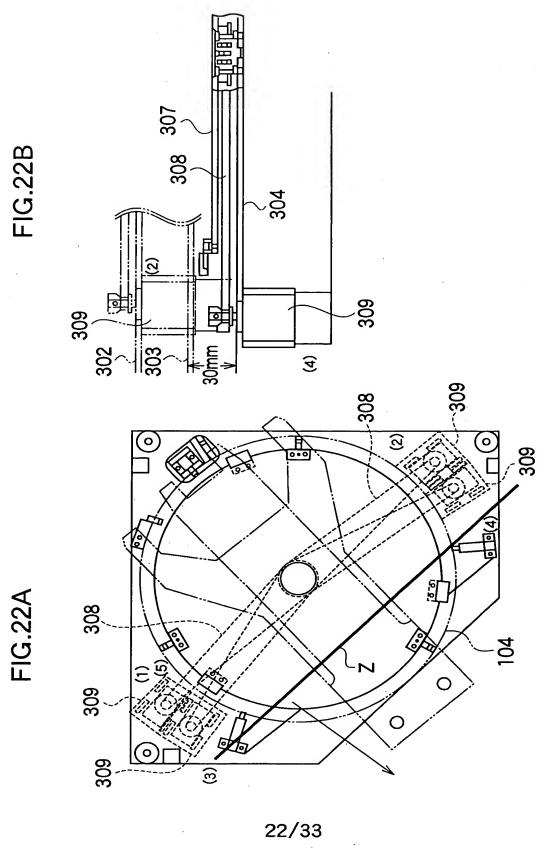


FIG.23A

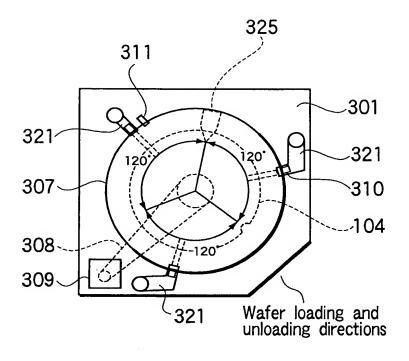


FIG.23B

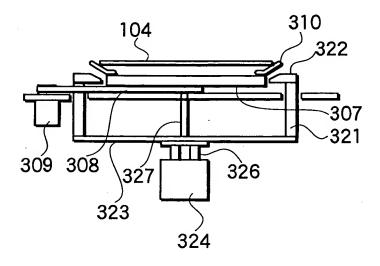


FIG.24

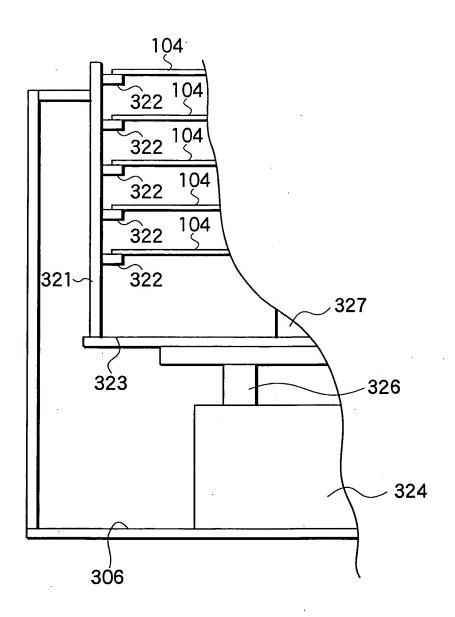


FIG.25A

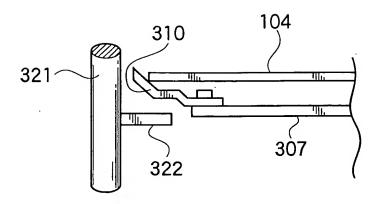


FIG.25B

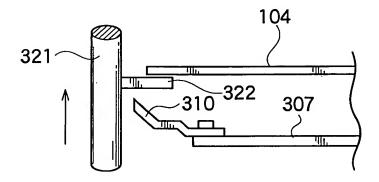


FIG.26

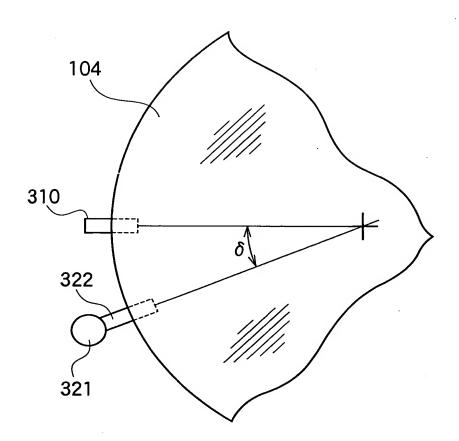
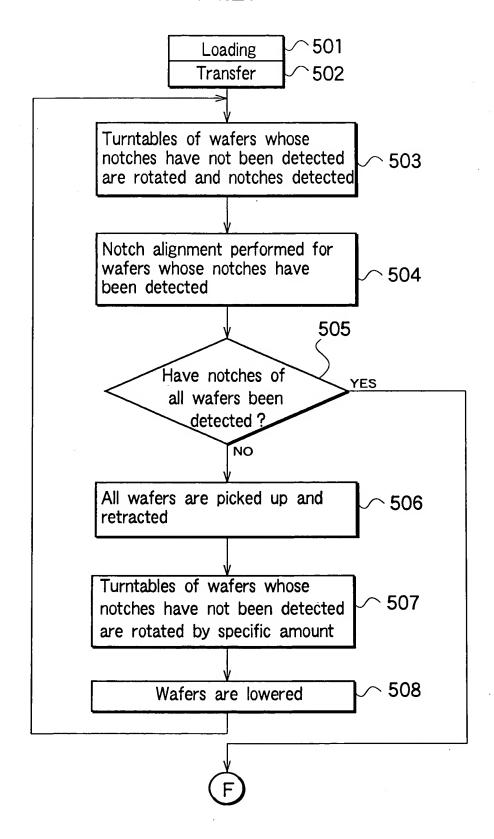


FIG.27



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FIG.28

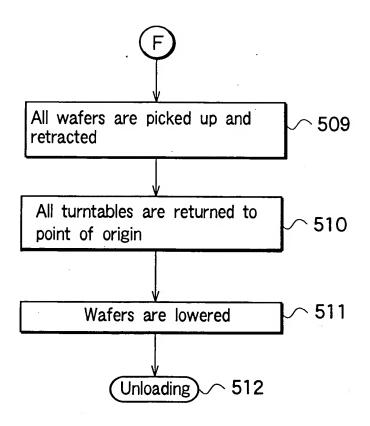


FIG.29

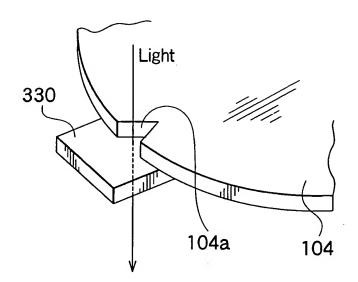


FIG.30A

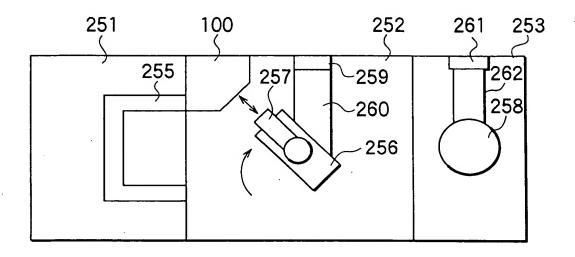


FIG.30B

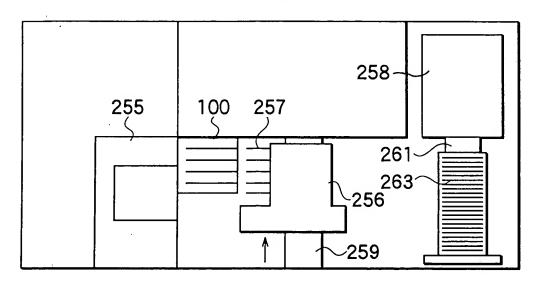


FIG.30C



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FIG.31

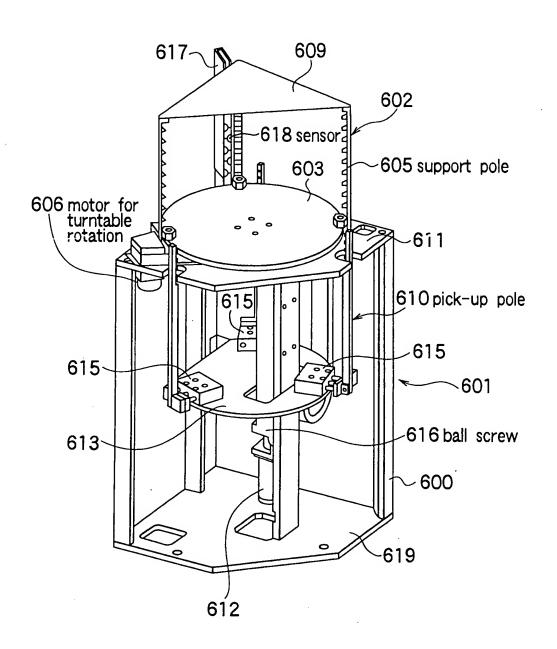


FIG.32

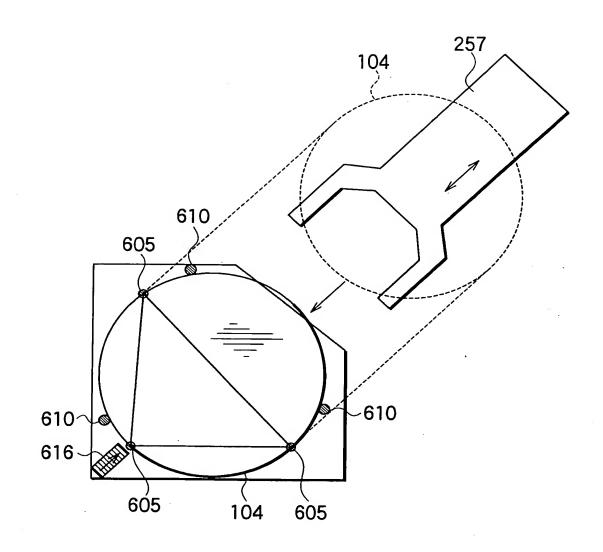


FIG.33

